September 15, 2008

FINDING OF NO SIGNIFICANT IMPACT

TO ALL INTERESTED GOVERNMENTAL AGENCIES AND PUBLIC GROUPS

As required by state and federal rules for determining whether an Environmental Impact Statement is necessary, an environmental review has been performed on the proposed action below:

Project	Conrad Wastewater Treatment Facility Upgrade
Location	Conrad, Montana
Project Number	C301189-01
Total Cost	$4,192,953

The City of Conrad, through the Conrad Wastewater Facilities Preliminary Engineering Report May 2004 and Amendment July 2007, both prepared by Morrison Maierle, Inc. has identified the need to upgrade their wastewater treatment facility in order to meet the Montana Department of Environmental Quality's permitting compliance schedule, reduce potential public health concerns, and reduce adverse environmental impacts associated with the condition of the existing facility. The proposed WWTF upgrade will include the construction of an extended aeration, activated sludge facility, using earthen basins for wastewater treatment. The upgrade will also include a cylindrical fine screen, vortex grit chamber, influent lift station, secondary clarifiers, ultraviolet disinfection, aerated digester, rotary drum thickener, sludge drying beds, and various appurtenances. The project will include the disposal of sludge from the existing three cells by either agriculture land (applied at agronomic rates) or tilling the sludge into the bottom of the lagoons (with nutrient up-take with crops for several years). A Section 404 permit may be required from the Corp of Engineers for construction of the outfall pipe which will occur in a small wetland.

Environmentally sensitive characteristics such as wetlands, floodplains, threatened or endangered species, and historical sites will not be adversely impacted as a result of the proposed project. No significant long-term environmental impacts were identified. An environmental assessment (EA), which describes the project and analyzes the impacts in more detail, is available for public scrutiny on the Department of Environmental Quality website: www.deq.mt.gov or at the following locations:

Department of Environmental Quality
1520 East Sixth Avenue
P.O. Box 200901
Helena, MT 59620-09011
jpaddock@mt.gov

City of Conrad
411 1/2 S. Street
Conrad, MT 59425

Comments on the EA may be submitted to the Department of Environmental Quality at the above address. After evaluating substantive comments received, the department will

revise the environmental assessment or determine if an environmental impact statement is necessary. If no substantive comments are received during the comment period, or if substantive comments are received and evaluated and the environmental impacts are still determined to be non-significant, the agency will make a final decision. No administrative action will be taken on the project for at least 30 calendar days after release of the Finding of No Significant Impact.

Sincerely,

_____

Todd Teegarden, Bureau Chief
Technical and Financial Assistance Bureau

CITY OF CONRAD
WASTEWATER TREATMENT PLANT UPGRADE

ENVIRONMENTAL ASSESSMENT

I. COVER SHEET

A. PROJECT IDENTIFICATION

Name of Project:	Wastewater Treatment Plant Upgrade
Applicant:	City of Conrad
Address:	411 ½ S. Main Conrad, Montana 59425
Project Number:	C301189-01

B. CONTACT PERSON

Name:	John P. Shevlin, Mayor
Address:	411 ½ S. Main Conrad, Montana 59425
Telephone:	(406) 271-3623

C. ABSTRACT

The City of Conrad, through the Conrad Wastewater Facilities Preliminary Engineering Report May 2004 and Amendment July 2007, both prepared by Morrison Maierle, Inc. has identified the need to upgrade their wastewater treatment facility in order to meet the Department of Environmental Quality's permitting compliance schedule, reduce potential public health concerns, and reduce adverse environmental impacts associated with the condition of the existing facility. The wastewater treatment facility (WWTF) provides service to a population of approximately 2,700 people. The effluent quality from the existing WWFT is poor and subject to frequent effluent permit violation for TSS and BOD. The existing WWTF was constructed in 1972 and consists of a three cell treatment system which includes an aerated cell and two shallow facultative cells. The two facultative cells currently have over 1.5 feet of accumulated sludge and the aerated cell is about half full of sludge (approximately 3.5 feet of sludge). Although the integrity of the cells appears adequate, the aeration equipment, walkways, baffling, and flow control structures are in poor shape. The high sludge depth in the facultative cells is most likely the cause for the inconsistent effluent quality. The Montana Department of Environmental Quality issued a new discharge effluent permit to the City in May of 2006 with new discharge limits beginning April 30, 2011 that will require monthly average ammonia discharge limits of less than 2.71 mg/L in summer, less than 3.18 mg/L in winter, and that the facility provide full time disinfection of *E. coli* bacteria to levels below 126 cfu/100ml in summer and 630 cfu/100 ml in winter. Moreover, it is expected that limits to the discharging stream for pollutants (nutrient loads such as phosphorous and nitrogen) will most likely be included in future permits to meet the water quality standards for surface waters established under Administration Rules of Montana (ARM) 17.30.603(1). Due to the treatment facility conditions and poor effluent quality, the treatment facility is in need of an upgrade to reliably achieve current permit compliance and to meet future discharge requirements.

The proposed WWTF upgrade will include the construction of an extended aeration, activated sludge facility, using earthen basins for wastewater treatment. The upgrade will also include a cylindrical fine screen, vortex grit chamber, influent lift station, secondary clarifiers, ultraviolet disinfection, aerated digester, rotary drum thickener, sludge drying beds, and various appurtenances. The project will include the disposal of sludge from the existing WWTF by either agriculture land (applied at agronomic rates) or tilling the sludge into the bottom of the lagoons (with nutrient up-take with crops for several years). A new effluent outfall location is proposed and will be located approximately 3,200 feet upstream of the existing outfall location.

Costs for the proposed improvements are estimated to be $4,192,953. The City has obtained one state grant for $500,000 from the Montana Department of Commerce Treasure State Endowment Program (TSEP). Additionally the City obtained two federal grants; one from the U.S. Army Corps of Engineers (Water Resources Development Act) for $245,000.00 and one from the State and Tribal Assistance Grants (STAG) for $477,000. The City will obtain a long-term loan from the U.S. Department of Agriculture Rural Development (RD) program for $2,942,400.00 and the City expects to pay approximately $28,553.00 in direct costs for the project. Because RD funds are not available until the construction is complete, the City will borrow up to $2,942,400.00 at 2.75% interest from the State Revolving Fund loan program to cover expenses during the final design and construction phases of the project. It is anticipated that construction will take up to 18 months.

Environmentally sensitive characteristics such as wetlands, floodplains, threatened or endangered species and historical sites are not expected to be adversely impacted as a result of the proposed project. Additional environmental impacts related to land use, water quality, air quality, public health, energy, noise, and growth were also assessed. No significant long-term environmental impacts were identified.

Under the Montana Water Pollution Control State Revolving Fund Act, the DEQ may loan money to municipalities for construction of public sewage systems.

The project will be constructed using standard construction methods and to minimize or eliminate pollutants during construction, best management practices will be implemented. A Stormwater Discharge General Permit and a construction-dewatering permit from the DEQ may be required prior to construction. No permits are required from the State Revolving Fund (SRF) section of the DEQ for this project.

The DEQ, Technical & Financial Assistance Bureau, has prepared this Environmental Assessment (EA) to satisfy the requirements of the National Environmental Policy Act (NEPA) and the Montana Environmental Policy Act (MEPA).

D. COMMENT PERIOD

Thirty (30) calendar days

II. PURPOSE OF AND NEED FOR ACTION

A. EXISTING WASTEWATER TREATMENT FACILITY AND PERMIT LIMITS

The City of Conrad is located in north central Montana along Interstate 15 on the east side of the continental divide (see Figure 1). The planning area includes the incorporated boundary of the City and selected areas immediately adjacent to the City boundary where future growth is expected in the 20-year planning period (see Figure

2). The City of Conrad's wastewater treatment facility (WWTF) was upgraded in 1972 to a three-cell treatment system that includes a total volume of 37.2 million gallons including the primary aerated treatment cell (see Figure 3). The only major improvement since 1972 is the addition of effluent metering facilities in 1991. The existing treatment facility must be run in series through the three cells due to non-operational piping. The hydraulic integrity of the treatment facility is apparently in good shape (negligible leakage through the cell bottoms) and aerators in the lagoons are in fair condition, however the aeration blower, blower building, walkways, baffling, and outfall and overflow structures are in very poor condition. The effluent from the WWTF has exceeded the 30-day average BOD and the TSS concentration limits numerous times. The average sludge depth in Cell 1 is 3.5 feet and the average sludge depth in Cells 2 and 3 is between 1.5 and 1.7 feet deep. The high sludge depths utilize treatment capacity and most likely contribute to the poor effluent quality. The effluent from the treatment facility flows to a small wetland, which forms an unnamed tributary that flows to the Dry Fork of the Marias River.

The City of Conrad is authorized to discharge under MPDES Permit No. MT0020079 to the unnamed tributary of the Dry Fork of the Marias River. The Montana Department of Environmental Quality (MDEQ) renewed the City's MPDES effluent discharge permit in May 2006. In addition to previous BOD and TSS limits, the new permit also included the following compliance schedule:

1. Prepare an engineering evaluation of alternatives to meet the *E. coli* bacteria limits and submit the evaluation to the MDEQ by December 31, 2008,
2. Submit (in writing) a plan and schedule for sludge removal by December 31, 2008,
3. Upgrade and construct the WWTF by April 30, 2011,
4. Sludge removal to be completed by April 30, 2011.

The permit also indicated the following requirements for disinfection and ammonia: year-round disinfection must meet in-stream *E. coli* bacteria limits of 126 cfu/100 ml in summer and 630 cfu/100 ml in winter (without benefit of in-stream dilution) and ammonia discharge limits of less than 2.71 mg/L in summer and 3.18 mg/L in winter.

To meet the surface water quality standards established under ARM 17.30.603(1) there may be nutrient (phosphorous and nitrogen) discharge limits included in future MPDES discharge permits for the WWTF. The existing treatment facility does not exceed the current effluent nutrient limits, which are based on nondegradation allocated load limits. However future discharge permits may include nutrient limits, based on numeric water quality standards, which are significantly lower than the allowable nondegradation load limits. Currently the numeric water quality standards are unknown for the discharge stream.

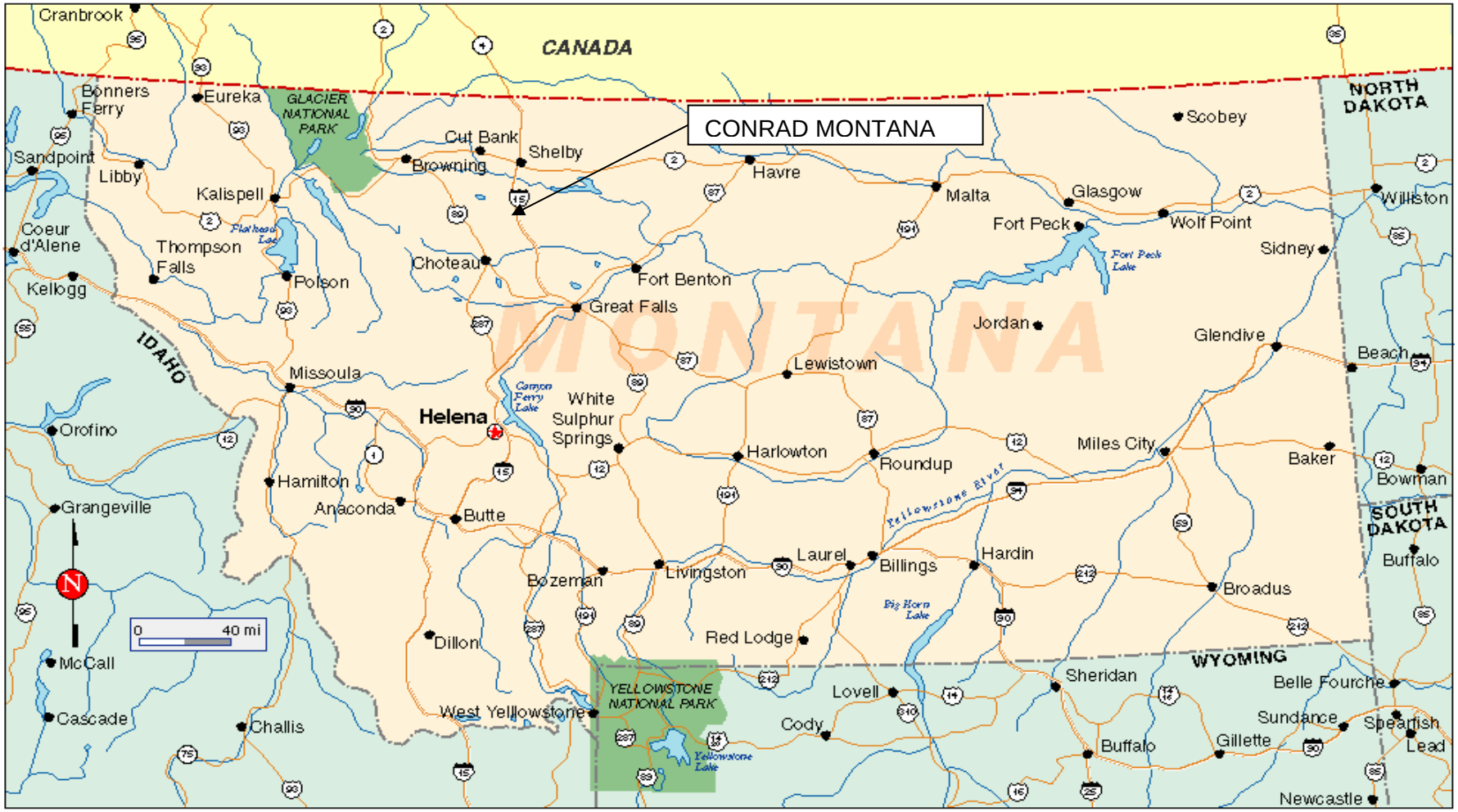

FIGURE 1
LOCATION MAP

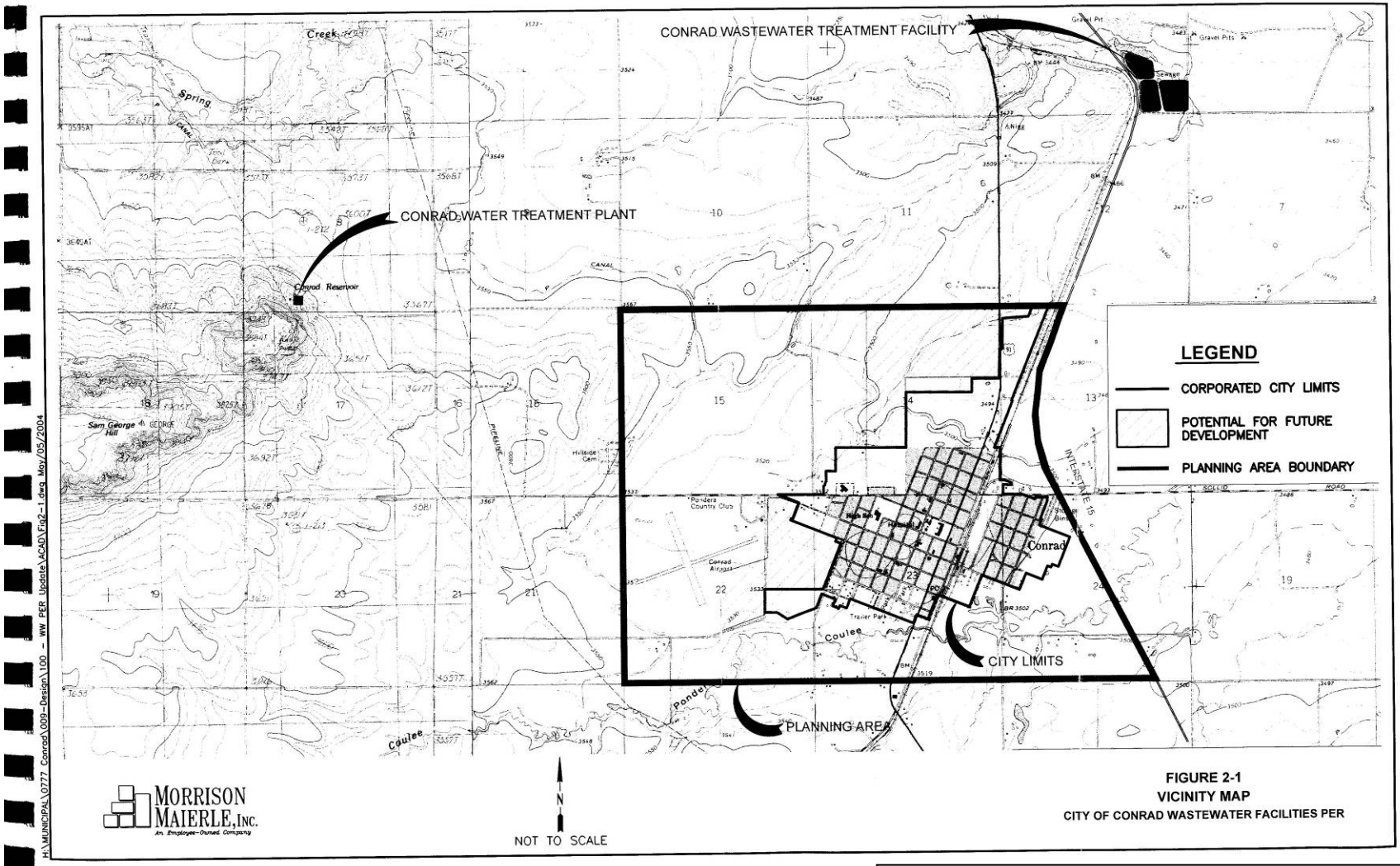

FIGURE 2-1
VICINITY MAP
CITY OF CONRAD WASTEWATER FACILITIES PER

FIGURE 2
PLANNING AREA and LOCATION OF WWTR

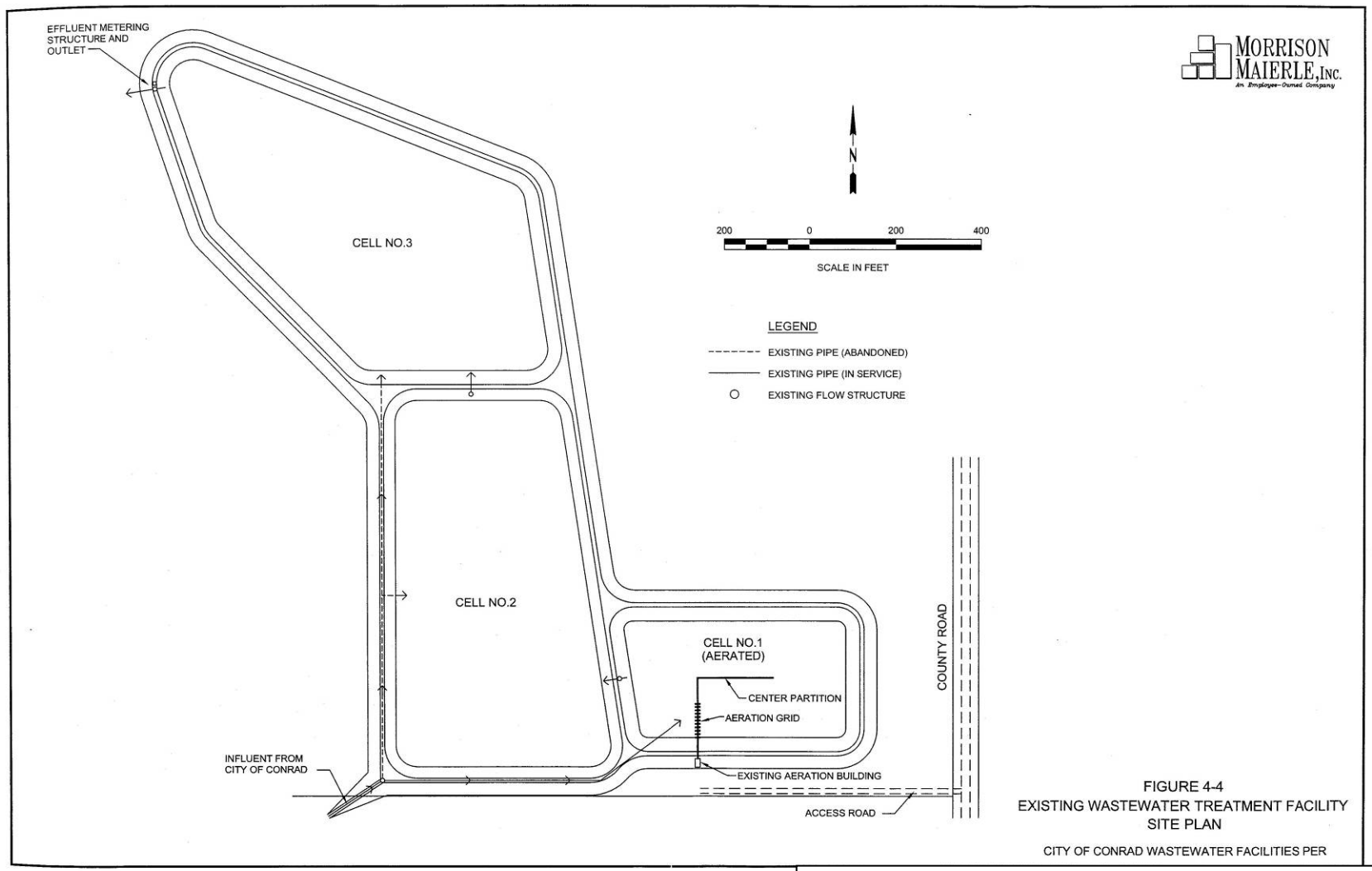

FIGURE 3
EXISTING WASTEWATER TREATMENT SYSTEM

A summary of existing and anticipated discharge limits is included in Table II-1.

Table II-1
Current and Anticipated Future Discharge Limits

	Average Monthly Limit (current / **future**)	Average Weekly Limit (current / **future**)	Maximum Daily Limit (current / **future**)	Annual Average Load (lb/day) (current / **future**)
BOD	30 / **30** mg/L	45 / **45** mg/L	NA	163 / **163**
TSS	100 / **45** mg/L	135 / **65** mg/L	NA	542 / **244**
Summer *E. coli* Bacteria (cfu/100ml)	1260 / **126**	NA	252 /	NA
Winter *E. coli* Bacteria (cfu/100ml)	NA / **630**	NA	2520 / **1260**	NA
Total Residual Chlorine (mg/L)	NA	NA	0.011 / **0.011**	NA
Anticipated Future Permit Limits				
Summer Total Ammonia (as N in mg/L)	NA / **2.71**	NA	12.6	NA
Winter Total Ammonia (as N in (mg/L)	NA / **3.18**	NA	12.1	NA

III. ALTERNATIVES INCLUDING THE PROPOSED ACTION

Five treatment technologies, some which included several wastewater treatment alternatives and the no action alternative, were investigated as possible solutions to upgrade the City wastewater treatment system in the PER. Each technology alternative was briefly discussed and the most practical alternatives were then analyzed in greater detail. Disinfection of the effluent and sludge disposal (from the existing lagoons) were common to all treatment alternatives and therefore two disinfection system alternatives and three sludge disposal alternatives were also investigated with the treatment upgrade project. The City has a compliance schedule included in the current MPDEA permit to upgrade and construct the WWTF by April 30, 2011.

A. TREATMENT TECHNOLOGIES – There were five alternative treatment technologies considered in the PER, including the no action alternative. The alternatives included the following:

1. No Action
2. Covered Aerated Lagoon System with Post-Lagoon Nitrification
3. Extended Aeration Activated Sludge Systems
4. Multi-Stage Activated Biological Systems
5. Seasonal Storage with Effluent Irrigation (No discharge)

1. NO ACTION – If sludge is not removed from the treatment lagoons and no changes are made to existing operational or maintenance practices, the consequence would most likely be that the existing system will continue to violate the discharge permit due to the substandard effluent water quality. If enforcement steps were taken by the state, these could include assessment of civil penalties up to $25,000 per day. Moreover, in

the near future, the existing system will be unable to achieve compliance with the disinfection and ammonia effluent standards. In addition to the substandard water quality from the existing lagoons and potential economic fines, other impacts of taking "no action" could include: public health issues and safety and welfare of the system operations due to the age and overall condition of the existing treatment system. The no action alternative was not a viable alternative and was not recommended.

2. COVERED AERATED LAGOON SYSTEM WITH POST-LAGOON NITRIFICATION – Two treatment technologies were evaluated using covered aerated lagoons technology and included the following.
   (1). Aerated Covered Lagoon with Advanced Wetland
   (2). Aerated Covered Lagoon with Nitrification Reactor

   Both these treatment systems included dividing the existing Cell 1 into 3 cells using floating curtains and included a new primary treatment system and new headworks building. New blowers, piping, and control equipment would be required for aerating the cells. The new 3 cells would also be covered with an insulated cover to promote temperature retention for winter time nitrification. The ammonia limits would be addressed in Alternative #(1) by an advanced wetland type of treatment system (Submerge Attached Growth Reactor (SAGR)), which would be constructed in a portion the existing (but reconstructed) existing Cell 2 and the second alternative included the use of a proprietary nitrification reactor in a concrete basin (LEMNA) to address ammonia limits. Either of these systems is capable of meeting the treatment goals and could provide the current permit level of treatment, or better.

   Due to significantly higher capital costs associated with construction of the SAGR alternative, the SAGR process was eliminated from further consideration. But because the LEMNA alternative is practical in terms of cost, environmental, and regulatory considerations, this alternative was further evaluated.

3. **EXTENDED AERATION ACTIVATED SLUDGE SYSTEMS**
   Seven treatment technologies were evaluated using extended aeration activated sludge treatment. The seven alternatives included:
   (1) Activated sludge in earth basin (BIOLAC system)
   (2) Activated sludge in oxidation ditch
   (3) Activated sludge in concrete basins using Bio-Wheel technology
   (4) Activated sludge in concrete basins using STM aerator technology
   (5) Activated sludge in concrete basins (non-proprietary)
   (6) Activated sludge in sequencing batch reactor (ISAM SBR)
   (7) Activated sludge in moving bed biofilm reactor (Kaldness MBBR)

   None of these alternatives required the continued use of the existing lagoons. All alternatives included some form of primary treatment (screens and/or grit removal), a headworks building, aeration equipment (air blowers, aerator wheels / bio-wheels), a sludge thickening process, and drying beds. Other than Alternative (6), which incorporates an internal clarifier, all other alternatives proposed separate clarifiers.

   Each of these alternatives are capable of meeting the treatment goals and could provide the current permit level of treatment or better. However, differences exist when considering upgrading these seven alternatives to achieve higher removal rates and/or nutrient removal. Alternative #(2) could be retrofitted by modifying the treatment

process without the need for construction of additional basins. All other would require construction of additional basins to facilitate treatment beyond those of the original installed system.

Due to significantly higher capital costs associated with construction, Alternatives #(3), #(5), #(6), and #(7) were eliminated from further consideration. The remaining three alternatives, #(1), #(2), and #(4) all would have similar capital and operating costs. Because these alternatives were practical in terms of cost, environmental, and regulatory considerations, they were further evaluated.

4. MULTI-STAGE ACTIVATED BIOLOGICAL SYSTEMS
One multi-stage activated biological technology was evaluated for use by the City of Conrad. This alternative would require a fine screen, headworks/blower building, and treatment basins. Other than solids handling from the screening equipment, there is no routine solids handling equipment necessary.

This technology is capable of meeting the treatment goals and could provide the current permit level of treatment, or better. However, this technology could involve significant support from the proprietary vendor, should anything go wrong. Because this alternative is practical in terms of cost, environmental, and regulatory considerations, this alternative was further evaluated.

5. SEASONAL STORAGE WITH EFFLUENT IRRIGATION (NO DISCHARGE)

This alternative would include modification of existing Cell 1 to include new components for more efficient and functional treatment. Existing Cells 2 and 3 would be combined, reconstructed to provide one deeper cell, and would include a new liner and new aeration equipment. An area for seasonal irrigation of the effluent onto a seed crop would be required; otherwise stricter requirements for treatment such as disinfection would be required. The effluent would be applied at agronomic uptake of the proposed crop and would eliminate the discharge to surface water (no MPDES discharge permit). Of all the alternatives considered, this alternative had the highest overall capital cost because of the cost to construct the large storage cell and the cost for the irrigation equipment, therefore this alternative was eliminated from further consideration.

B. DISINFECTION TECHNOLOGIES – Two alternative disinfection technologies were discussed in the PER and included the following alternatives:
1. Chlorine gas
2. Ultraviolet light (UV)

Disinfection would be common to all the alternatives except for Alternative A-5 Seasonal Storage with Effluent Irrigation. Either of the disinfection alternatives would be capable of meeting the disinfection treatment goals and could provide the level of disinfection required in the MPDES permit. Alternative evaluations have consistently pointed out that UV disinfection is the preferred choice. Chlorine gas is a significant safety threat to the plant staff, the public and the environment. Moreover, chlorination of wastewater creates by-products that have been determined to be harmful to the environment and to humans. Because the UV disinfection alternative is practical in terms of cost, environmental, and regulatory considerations, the UV alternative was recommended.

C. SLUDGE REMOVAL – Three alternative sludge disposal methods were discussed in the PER and included the following:
   1. No Action
   2. Liquid Dredging and Land Application
   3. Limited Dredging/In-situ Dewatering and Land Application

1. NO ACTION – A compliance schedule for sludge removal is included in the City's current MPDES discharge permit which specifies that sludge removal be completed by April 30, 2011. Therefore, the no action alternative is not a viable alternative and was not recommended.

2. LIQUID DREDGING AND LAND APPLICATION – This alternative would include the direct pumping of the sludge to adjacent agriculture land. It was estimated that approximately 900 acres of wheat land would be required if all the sludge from Cells 1, 2, and 3 was applied in one year and 600 acres of land if the sludge was applied on two consecutive years. The most recent sampling data indicated the sludge could be direct spread without burial (interment). According to the EPA, depending on the level of stabilization, the sludge may require burial within 6 hours of application to the land. This requirement would have to be determined prior to completing the work with the EPA. Landowners have expressed some concern with the non-organic items in the sludge, which may require the need to bury it. Due to a significant high capital cost of $744,000, this alternative was eliminated from further consideration.

3. **LIMITED DREDGING/IN-SITU DEWATERING AND LAND APPLICATION** – This alternative would include dewatering the sludge prior to removal and application of the dried sludge to agriculture land. This alternative would consist of the following phases of work. Once the cells have been removed from the flow path, pond circulators would be employed to help reduce the volume and quantity of sludge, possibly taking one to two years for this phase. The second phase would allow the sludge to dewater and dry in the cell. Some surface water would be decanted and "working" of the top layer of sludge would be performed to facilitate drying. Once a dry product is created, the sludge would be loaded onto trucks, hauled to agricultural land and applied at agronomic rates or tilled into the bottom of the lagoons (with nutrient up-take with crops for several years). The estimated cost for this alternative is $115,200. Because the sludge could be removed by limited dredging, in-situ dewatering, and land application, this alternative is practical in terms of cost, environmental, and regulatory considerations and this alternative was further evaluated.

D. COST COMPARISON FOR ALTERNATIVES USING PRESENT WORTH ANALYSIS

The present worth analysis is a method of comparing alternatives in present day dollars and can be used to determine the most cost-effective alternative. An alternative with low initial capital cost may not be the most cost efficient project if high monthly operation and maintenance costs occur over the life time of the alternative. Summaries of the present worth analyses of the feasible treatment alternatives are provided in Table III-1. The present worth analysis was not necessary for the recommended sludge removal alternative because the there were no annual operations and maintenance costs associated with the alternative. Capital costs include UV disinfection and sludge removal costs. Salvage values were determined to be inconsequential and therefore not presented. An interest rate of 6.0% over the 20-year planning period (Design Year 2025) was used in the analysis.

TABLE III-1 - ECONOMIC EVALUATION OF TREATMENT ALTERNATIVES

Alternative Number	Alternative	Total Capital Cost For Treatment	Increase in Yearly O&M	**Total Present Worth**
A.2.(2)	Aerated Covered Lagoon with Nitrification Reactor (LEMNA)	$3,735,000	$36,700	**$4,159,000**
A.3.(1)	**Activated Sludge in Earth Basin (BIOLAC system)**	**$3,480,000**	**$87,000**	**$4,478,000**
A.3.(2)	Activated Sludge in Oxidation Ditch	$3,910,000	$87,000	**$4,908,000**
A.3.(4)	Activated Sludge in Concrete Basins using STM Aerator Technology	$3,712,000	$87,000	**$4,710,000**
A.4	Multi-Stage Activated Biological Technology	$3,480,000	$72,000	**$4,306,000**

Costs for the proposed improvements are estimated to be $4,192,953. The City has obtained one state grant for $500,000 from the Montana Department of Commerce Treasure State Endowment Program (TSEP). Additionally the City obtained two federal grants; one from the U.S. Army Corps of Engineers (Water Resources Development Act) for $245,000.00 and one from the State and Tribal Assistance Grants (STAG) for $477,000. The City will obtain a long-term loan from the U.S. Department of Agriculture Rural Development (RD) program for $2,942,400.00 and the City expects to pay approximately $28,553.00 in direct costs for the project. Because RD funds are not available until the construction is complete, the City will borrow up to $2,942,400.00 at 2.75% interest from the State Revolving Fund loan program to cover expenses during the final design and construction phases of the project. It is anticipated that construction will take up to 18 months.

The financial impact of this project on the system users is shown in Table 2. Based on the EPA guidance for project affordability, the proposed project will result in a monthly cost per household that is 1.05% of the monthly median household income and therefore is not expected to impose a significant economic hardship on household income. The proposed rates are based on the number of current hookups (households). Should the number of hookups increase or decrease, at some point in the future, the monthly user cost may require adjustment (increase if the hookup number decreases and decrease if the hookup number increases).

TABLE 2 PROJECT AFFORDABILITY	
Existing Monthly wastewater service rate	$20.65
New monthly debt service and O&M increase	$ 5.01
Total monthly user cost[1]	$25.66
Monthly median household income (mMHI)[2]	$2,453.00
User rate as a percentage of mMHI	1.05 %

[1] Uniform Application for Montana Public Facility Projects and 2004 PER
[2] Based on 2000 census data

E. BASIS OF SELECTION OF PREFERED ALTERNATIVE

Selection of the preferred treatment alternative was based upon several criteria, both monetary and non-monetary. The ranking criteria and weighting factors in terms of relative importance are shown in Table 3. As shown in the ranking criteria matrix, alternatives A.2(2), A.3(1) and A.3(2) scored the highest. Alternative A2.(2) ranked slightly higher in the present worth comparison, while alternative A.3(2) ranked higher for expandability and operational flexibility. Based on the overall score, alternative A.3(1), activated sludge with BIOLAC system, was selected to provide wastewater treatment for the City of Conrad.

TABLE 3
COMPARISON AND RANKING OF TREATMENT ALTERNATIVES

		A.2(2)	A.3(1)	A.3(2)	A.3(4)	A.4
Comparison	Parameter Weight	LEMNA Lagoon w/Nitrification Reactor	Activated Sludge w/ BIOLAC	Activated Sludge In Oxidation Ditch	Activated Sludge w/STM Aerator	Multi-Stage Activated Biological (MSABP
Cost Effectiveness	6	5	5	4	4	5
Treatment Reliability	4	4	5	5	4	3
Operational Ease	4	5	4	4	4	4
Energy / Resource Use	2	4	4	4	4	5
Facility Flexibility	4	3	5	5	4	3
WEIGHTED SCORE TOTAL		**86**	**94**	**88**	**80**	**80**

The Wastewater Treatment Plant Upgrade alternatives, including wastewater treatment, effluent disinfection, and sludge disposal were compared relative to one another based on the following criteria: cost, environmental compliance, regulatory compliance, compatibility with existing facilities, constructability, energy savings, and ease of maintenance. It was determined that the **Activated Sludge in Earth Basin (BIOLAC system), UV Disinfection, and Limited Dredging/In-Situ Dewatering and Land Application** for wastewater treatment approach and the **Limited Dredging, In-Situ Dewatering, and Land Application** for sludge disposal approach meets the requirements to protect environmental quality, reduce maintenance, energy costs, and achieve regulatory compliance.

F. SELECTED ALTERNATIVES

In order to meet the anticipated future ammonia limit and year-round disinfection limits, the existing treatment facility will need to be upgraded to include more advanced treatment technology processes. The proposed extended aeration activated sludge facility includes an activated sludge system and will be constructed using earthen basins. This system was developed by Parkson Corporation and typically called a BIOLAC system. The project will

also include the following unit processes:

Influent and Effluent Parshell flumes for flow measurement	
Screening	Aerobic digestion
Grit removal	Ultraviolet disinfection system
Influent pumping	Sludge thickening
Aeration basin	Sludge drying beds
Secondary clarification	

A heated treatment building will be constructed to house some proposed equipment, including the headworks equipment (screens, grit chamber and grit classifier), the sludge thickener, influent pumps, ultraviolet disinfection system, and the blowers. The proposed building will also include space for an office/laboratory area and a truck bay. See Figure 4 for the layout of the proposed alternative.

In addition to the above items, instrument plant controls (SCADA) will be installed to monitor and record influent and effluent flow rates, wet well levels, and aeration equipment run time and alarms. The return activated sludge flow rate, waste activated sludge flow, and solids thickening system will be operator controlled. In the event of a power outage at the WWTF, a standby power generator is proposed that will run the essential equipment during the power outage. Final disposal of the dried sludge will include physical removal of the sludge from the proposed drying beds and transport to the landfill or to a land application site.

The proposal for sludge removal and disposal from the existing three lagoons includes decanting the liquid from the surface, then allowing the sludge to dry in the existing lagoons (possibly over a two year period), “working” the top layer to facilitate quicker drying of the sludge, and then disposal of dried sludge to agriculture land (applied at agronomic rates) or tilling the sludge into the bottom of the lagoons and allowing nutrient up-take with crops for several years.

IV. AFFECTED ENVIRONMENT

A. PLANNING AREA

The City of Conrad is located in Pondera County in north central Montana. The City of Conrad is located 63 miles north of Great Falls, Montana. The planning area boundary is shown on Figure 3 and includes the incorporated boundary of the City and adjacent parcels that directly benefit from the project. The elevation of Conrad ranges from 3500 to 3530 feet above sea level. The planning area includes portions of Sections 13, 14, 15, 22, 23, and 24, Township 28 North, Range 3 West. The planning area includes residential homes, vacant lots, commercial businesses, and public entities. The duration of construction of the proposed new treatment facility should be approximately 18 months and the sludge removal and reclamation of the existing lagoons should occur within two years of when the new treatment system begins operation. As noted on Figure 3, the wastewater treatment area is located several miles northeast of the city and is not included in the planning area.

B. FLOW PROJECTIONS

The long term average wastewater flow per day to the existing treatment facility is 0.36 million

gallons per day and the 2025 design flow is 0.50 million gallons per day. The proposed treatment facility is expected to meet an monthly average ammonia discharge limit of 2.71 mg/L in summer and 3.18 mg/L in winter, provide full time disinfection of *E. coli* bacteria to levels below 126 cfu/100ml in summer and 630 cfu/100ml in winter, and may eventually be required to meet water quality standards for discharges into streams to protect surface water aquatic life and to project human health. Pollutants that would most likely be regulated (limited discharges or loading) in future discharge permits would be phosphorous and nitrogen.

C. NATURAL FEATURES

The three current treatment lagoons include approximately 23 acres of surface area. The treated effluent discharges to an unnamed tributary approximately 1.9 miles above its confluence with the Dry Fork of the Marias River. The proposed wastewater treatment facility will continue to discharge to the unnamed tributary, but at a new outfall location which is approximately 3,200 feet upstream of the current discharge location. While the new outfall location will be into a small wetland, this discharge location will save the construction of approximately 1,750 feet of pipe, which is a significant cost savings to the City.

The Dry Fork of the Marias River is classified as a B-2 stream. The Montana Board of Environmental Review recently reclassified the stream to a B-3, based on a Use Attainability Analysis (UAA). The City requested MDEQ prepare the UAA on the tributary. Final approval of the reclassification by the EPA is currently pending. A B-3 classification sets specific water quality criteria to protect this stream to be maintained suitable for drinking, culinary and food processing purposes; after conventional treatment; bathing, swimming and recreation; growth and propagation of non-salmonid fish and associated aquatic life, waterfowl and furbearers; and agriculture and industrial water supply.

Environmental impacts anticipated from the construction of the new wastewater treatment facility are expected to minimal. However, as noted above, a new outfall pipe from the proposed treatment facility is proposed to be extended into a wetland. The wetland is a riverine wetland associated with an unnamed intermittent stream that bisects the eastern portion of the project area. The construction of the outfall pipe will include excavation, placement of pipe bedding, the pipe, and placement of backfill material. The new treatment facility is not expected to affect other natural features in the area. Groundwater in the location of the new proposed treatment facility ranged from 11.5 to 17 feet (below ground surface) during drilling of the boreholes in December of 2007. No impact to groundwater is expected due to the proposed project. Once the sludge has dried enough to allow handling (after several years), most of the sludge would be removed from the site, the lagoon dikes may be breached or removed (leveling the area), and the site would be seeded with a crop to stabilize the soil and for future harvest.

D. POPULATION

Population growth over the 20-year design life of the proposed treatment facility is projected to be approximately 2 percent per year to allow for some residential growth and for moderate commercial/industrial expansion. Currently the population is approximately 2,730 and the equivalent design population in 2025 is expected to be 4,000. The population of the City declined from 1990 to 2000 according to the census data. However, City officials indicate the population is increasing and wish to design the proposed treatment system with additional flow and treatment capacity to allow for growth in the community without the need to upgrade the treatment facility in the near future. Continued growth is expected in the incorporated

boundary of the city (city limits) and several adjacent neighboring areas (the planning area). As these adjacent areas are developed, they will be incorporated into the city and connected to city services, thereby increasing the population contributing wastewater to the proposed wastewater treatment facility.

E. MAPS

Figure 1 shows the general location of the City of Conrad within the state of Montana. The City of Conrad (including the planning area) and the location of the existing wastewater treatment facility are shown in Figure 2. Figure 3 shows the existing treatment facility and the project area, and Figure 4 shows the proposed improvement layout.

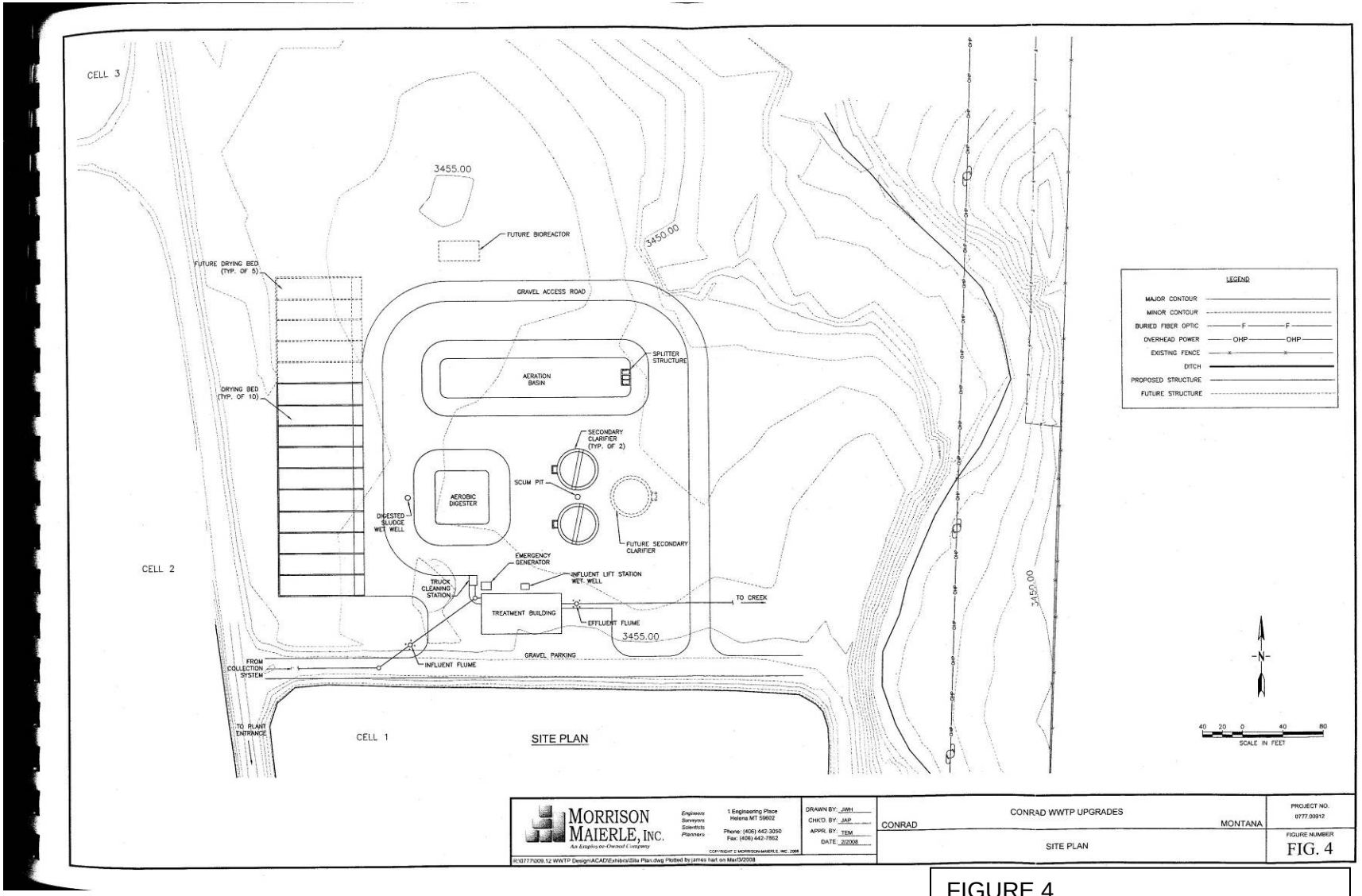

FIGURE 4
PROPOSED IMPROVEMENT PLAN

V. ENVIRONMENTAL IMPACTS OF PROPOSED PROJECT

A. DIRECT AND INDIRECT ENVIRONMENTAL IMPACTS

1. Land Use – The proposed improvements will be constructed next to the existing lagoons and will not impact new land. The construction of a new facility will not have an impact on local growth issues. Wastewater treatment capacity has not and will not be a controlling factor in growth within the next 20 years. The proposed facility will not impact prime farmland. The City owns the site where the existing wastewater treatment facility is located and the site where the proposed facility will be located; therefore no additional land will be required for the proposed project.

2. Floodplain – The proposed project is not located within a delineated 100-year floodplain according to the FEMA Pondera County Floodway Maps and State of Montana Department of Natural Resources and Conservation floodplain management section. Therefore, this project would not require a floodplain development permit.

3. Wetlands – A new outfall pipe from the proposed wastewater treatment facility (WWTF) will be constructed to the same tributary of the Dry Fork of the Marius River. However, the new discharge location will be approximately 3,200 feet above the existing location and the proposed outfall location will be into a small wetland. The new outfall location will save the construction of approximately 1,750 feet of pipe, which would be a significant cost savings to the City. Construction in the wetland would be limited to trench excavation, placing the proposed outfall pipe and backfilling. The year-round flow of water from the WWTF is expected to provide a positive impact to the wetland. Before dredged or fill material can be discharged or placed into waters of the United States, including wetlands, a 404 permit must first be obtained from the U.S. Army Corps of Engineers. Because of the wetland, a 404 permit from will be applied for by the City. Prior to issuing this permit, any potential or future impacts to wetlands will be addressed.

4. Vegetation – Vegetation will not be significantly affected by the proposed project. The Montana Natural Heritage Program listed no plants of concern.

5. Cultural Resources – According to the Montana State Historic Preservation Office (SHPO), there appears to be no properties on or are eligible for the National Register of Historic Places within the project area.

4. Fish and Wildlife – The Montana Natural Heritage Program (MNHP) listed the Dwarf Shrew (a mammal) as a species of potential concern in the project area; however, NatureServe (natureserv.org) indicated that this species is not found in Pondera County. The MNHP listed Swainson's Hawk as a bird of concern in the project area. Aquatic and animal life will not be significantly affected by the proposed project. The project should not affect any wildlife habitats and will provide water quality benefits that will protect and reduce the risk of harm to fisheries and other animals.

5. Water Quality – Water quality should improve due to the proposed project. The proposed project should prevent water quality standards violations and provide better treatment of the wastewater. Ammonia toxicity and high fecal coliform numbers should not occur in the receiving stream due to the wastewater with the proposed system.

6. Air Quality – Short term negative impacts on air quality will occur during construction from heavy equipment in the form of dust and exhaust fumes. Proper construction practices will minimize this problem. Project specifications will require dust control.

7. Public Health – Public health impacts will be minimized with the proposed project. The proposed UV disinfection system will adequately disinfect the treated effluent to a level safe for human contact in the receiving stream.

8. Energy – A direct short-term impact of energy resources will be consumed during the construction phase. In the long-term, an increase in energy consumption will occur, but will be minimized as much as possible through the use of energy efficient aeration equipment.

9. Sludge Disposal - As part of this project, after dewatering, the existing sludge will be removed from the existing lagoons, loaded onto trucks, and either hauled to agricultural land and applied at agronomic rates or tilled into the bottom of the lagoons. The sludge will be disposed of in accordance with EPA's 503 regulations. Disposal of the dried sludge from the proposed facility will include physical removal of the sludge from the new drying beds and transported to the landfill or to a land application site.

10. Noise – Short-term impacts from excessive noise levels may occur during the construction activities. In the long-term, slightly higher noise levels than are currently experienced may occur periodically due to the increased number of blowers and motors at the treatment site. The new blowers and motors will be housed in the proposed building and therefore will not emit significantly more noise than the current blowers. In addition, the WWTF is situated within an agricultural area and adjacent to the interstate that is not sensitive to noise.

11. Growth – In the period 1990 through 2000, the population of Conrad and Pondera County declined slightly. However, the City population is expected to increase approximately 2 percent per year during the life of the wastewater treatment facility.

Improvements to the wastewater treatment facility should be a positive feature in the community, as discussed above. Improvements of the wastewater treatment system may result in secondary impacts that are associated with the growth of the community. This project would allow the City to manage its growth in a proactive manner and promote urbanization within its service area. The anticipated increase in population and development in the service area would result in increased flows to the wastewater treatment facility. Secondary impacts may include impacts to: housing, commercial development, agriculture lands, solid waste, transportation, and utilities.

12. Cumulative Effects – No significant adverse impacts are anticipated.

B. UNAVOIDABLE ADVERSE IMPACTS

Short-term construction related impacts (i.e., noise, dust, traffic disruption, etc.) will occur but should be minimized through proper construction management. Energy consumption during construction cannot be avoided.

VI. PUBLIC PARTICIPATION

A presentation on the draft Preliminary Engineering Report (PER) was made to the City of Conrad at their March 23, 2004 council meeting by the City's consulting engineers and a second public meeting was conducted on April 20, 2004 to discuss the recommendations in the PER. The recommendation was to rehabilitate and upgrade the existing aerated lagoon facility, add ultraviolet light disinfection, and dispose of the sludge through agriculture processes. The 2004 PER was adopted by the city council on July 19, 2004. On July 2, 2007 the City council voted to approve the Amendment to the 2004 PER, which recommends a treatment facility that included an activated sludge treatment system to meet future ammonia limits and an ultraviolet light disinfection system to meet future disinfection limits, and dewatering the lagoons and disposing of the sludge.

VII. REFERENCE DOCUMENTS

The following document has been utilized in the environmental review of this project and is considered to be part of the project file:

1. Preliminary Engineering Report, Wastewater Facilities, prepared for the City of Conrad, by Morrison Maierle, Inc., Helena, Montana, May 2004.
2. Preliminary Engineering Report Amendment, Wastewater Facilities, prepared for the City of Conrad, by Morrison Maierle, Inc., Helena, Montana, July 2007.
3. Basis of Design Report, Wastewater Treatment Plant Upgrade, prepared for the City of Conrad, by Morrison Maierle, Inc., Helena, Montana, March 2008.
4. Uniform Application Form for Montana Public Facility Projects for the City of Conrad Wastewater Facility Improvement, April 29, 2008.

VIII. AGENCIES CONSULTED

The following agencies have been contacted in regard to the PER, which determined the basis for the proposed wastewater treatment and collection system project:

1. The Montana Department of Fish Wildlife and Parks (FWP). Does not foresee any impacts to listed species of wildlife, or to nongame species of special interest or concern.

2. The U. S. Fish and Wildlife Service (FWS) reviewed the proposed project and determined the proposed project would not negatively impact listed species, wetlands, or migratory birds and their habitats.

3. The Montana State Historic Preservation Office (SHPO) considered the impacts of the proposed project on historical sites and cultural resources and indicated there appears to be no properties on or are eligible for the National Register of Historic Places within the project area. The Montana State Historic Preservation Office asks to be contacted and the site investigated should cultural materials be inadvertently discovered during construction.

4. The U.S. Army Corps of Engineers (COE) reviewed the proposed project and responded that if construction activities includes the discharge of fill material, either permanently or temporarily into waters of the United State and lakes or ponds connected to the tributary system, and wetlands adjacent to these waters, then a

Department of Army Section 404 permit may be required. This project appears to be under the jurisdictional waters of the U.S under the authority of Section 404 of the Clean Water Act due to the wetland that will be affected with the outfall pipe.

If the construction of the outfall pipe impacts 0.10 acres of wetland, the COE will require that compensatory mitigation be completed. Regardless of the area of impact, a Section 404 permit will be obtained from the COE for this project, if necessary (COE will make final decision).

5. Montana Natural Heritage Program website was consulted by the city engineers and the database did not locate any riparian wetlands that the project would impact.

6. Department of Natural Resources and Conservation (DNRC) reviewed the proposed project and determined that the project is not located in a designed 100-year floodplain and that the project will not have an impact on the 100-year floodplain for this area.

Recommendation for Further Environmental Analysis:

[ ] EIS [ ] More Detailed EA [X] No Further Analysis

Rationale for Recommendation: Through the Preliminary Engineering Report (PER), prepared by Morrison-Maierle, Inc. and the public process involved, the City of Conrad determined that the preferred wastewater treatment system alternative will improve the operation and maintenance capabilities of their system. Through this EA, the MDEQ has verified none of the adverse impacts of the proposed Wastewater Treatment Facility Upgrade are significant; therefore an environmental impact statement is not required. The environmental review was conducted in accordance with the Administrative Rules of Montana (ARM) 17.4.607, 17.4.608, 17.4.609 and 17.4.610. This EA is the appropriate level of analysis because none of the adverse effects of the impacts are significant. A Finding of No Significant Impact (FONSI) will be issued and legally advertised in the local newspaper and distributed to a list of interested agencies. Comments regarding the project will be received for 30 days before final approval is granted.

EA Prepared By:

_____ _____
Jerry Paddock P.E. Date

Approved By:

_____ _____
Mike Abrahamson P.E. Date